College of Engineering
Civil Engineering Department
Surveying Engineering Program
SE 999

Training at GCS
' The General Commission for Survey '

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Submitted in Partial Fulfillment of the Requirements for the
B.Sc. Degree in Civil Engineering
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Abstract:

The Cooperative Training at King Saud University is about how to link scientific material that has been studied with practical and functional life. And prepare the student to for better career.

In this report I will talk about my training experience.

The General Commission for Survey leading national organization in surveying, mapping, charting, geographical information and hydrographic survey .

I worked in the commission for ten weeks . I trained in five departments . Also , each department has several sections .

Acknowledgment:

I would like to thank all those who supported me during the training period.
I am grateful for the ambitious and constructive criticism that helped me correct my mistakes.
I would like to extend my thanks to Dr. Ahmed Al Ashaikh and Eng. Yasser Alsaid for what he has done to me and try to find the best training opportunity .
I would also like to thank my fellow trainees in my work team, especially Eng. Bader . He was like my other hands and thank him for helping me to solve the problems we encountered and try to solve them with the responsible engineer.

Summary :

The Cooperative Training at King Saud University was about how to link scientific material that has been studied with practical and functional life. And prepare the student to for better career.

In this report I spock about my training experience.

The General Commission for Survey leading national organization in surveying, mapping, charting, geographical information and hydrographic survey .

I worked in the commission for ten weeks . I trained in five departments . Also , each department has several sections .

Chapter 1 : The General Commission for Survey

Figure (1.1) : The General Commission for Survey logo 'GCS'

Introduction

Modern societies face numerous challenges, and in varying degrees, all of them involve location, because almost everything of concern to society ultimately has a locational dimension. Therefore, location is increasingly regarded as the fourth driver in national decision-making, in addition to social, economic and environmental drivers. Societies and their governments now require the right geospatial (geographically referenced; i.e., locational) information and tools in order to respond to the national agenda and achieve sustainable development.

A nation's most fundamental geospatial information is the information that describes the location and characteristics of its natural and man-made features, such as mountains, wadis, coastlines, islands, roads, buildings, pipelines and so forth. This geospatial information is a critical input for national planning and management, as well as the provision of services by both the government and private sectors.

Geospatial information is collected through topographic (terrestrial) and hydrographic (marine) surveys, and referenced to a coordinate system that is defined through geodetic surveys. In recognition of the essential national requirement for a central agency to provide geospatial information and positional services covering the Kingdom's territorial extents, the Saudi government established the General Commission for Survey (GCS).

Vision

The GCS vision is to be the benchmark organization in the Kingdom of Saudi Arabia, for surveying, mapping, geographical information and hydrography.

Mission

As the leading national organization in surveying, mapping, charting, geographical information and hydrographic survey, the GCS mission centers around:

- The production and marketing of geo-spatial survey information and services.
- Improving relevant technologies.
- High quality manpower training and development.
- Cooperation with GCS partners to meet user and decision-maker requirements.

Strategic Objectives

- Identify requirements for mandated geodetic, topographic and hydrographic surveys.
- Establish standards and technical specifications for mandated geodetic, topographic and hydrographic surveys, and geospatial information production and dissemination.
- Identify, organize and monitor all mandated survey activities, mapping, production of geographical information and production of hydrographic data and information in accordance with national requirements.
- Establish and maintain the databases needed to support the GCS core mission.
- Execute, or authorize and oversee all national aerial surveys.
- Establish, maintain, and monitor national geodetic reference systems and control networks.
- Supply, market and support mandated products and services.
- Conduct research and development needed to address emerging national requirements.
- Develop human resources to meet the standards required for mandated activities in geodetic, topographic and hydrographic surveys, and geospatial information production and dissemination.
- Increase public awareness of GCS activities in geodetic, topographic and hydrographic surveys, and geospatial information production and dissemination.
- Identify and promote the strategic partnerships that are needed to promote GCS mandated objectives.
- In order to support GCS core values, continually improve organizational and technical capabilities through performance centered leadership.

To carry on its vital mandate to support different national stakeholders in the Kingdom of Saudi Arabia, the General Commission for Survey's (GCS) main focus is to cover the following fields of services and activities:

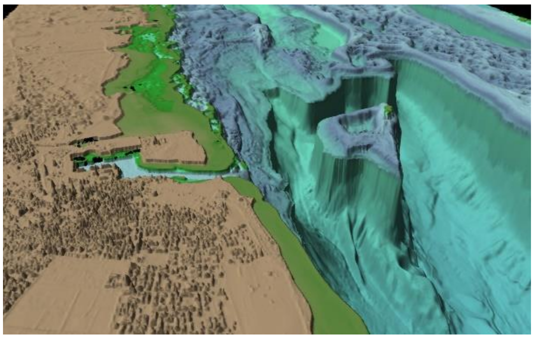


Figure (1.2) : Topographic modle

- Geodetic Surveys: focusing on the different branches of earth sciences related to geological structures and other topics of interest.
- Topographic Surveys: studying the different areas of the Kingdom’s land surface and producing topographic maps with terrain, water and man-made specific features.
- Hydrographic Surveys: aiding mariners to meet their requirements. in addition to nautical charting.
- Nautical Charting.
- National Tide Guage Network.

While providing the above deliverables and services, GCS utilizes state of the art technologies, standards, methodologies, data gathering stations, and highly qualified human resources In order to facilitate and regulate access to the myriad of information developed and owned by GCS, a Geospatial Information Center (GIC) was established to consolidate this data in a manner which empowers GCS to promptly provide information efficiently and in its ideal form.

GCS determined at the outset to base its strategies, policies and procedures on the best practices of other similar organizations and institutions worldwide, considering the specific nature of the local environment and its requirements. Thorough studies, strong cooperation and academic affiliations were conducted to ensure that GCS best utilizes its resources, securing best fulfillment of its mandate.

Section 1 : Geodesy and Land Survey

Geodesy is a geoscience concerned with the determining and measuring the size and shape of the Earth. It also deals with computing the positions of points with utmost accuracy in addition to measuring and describing the Earth's gravity field and the variations thereof. Land surveying is defined as the science, art and technology of making all essential measurements to determine the relative position of physical and cultural features above, on, or beneath the surface of the Earth, and to depict them in map or digital format. Geodesy and land surveying function to carry out tasks such as the following:

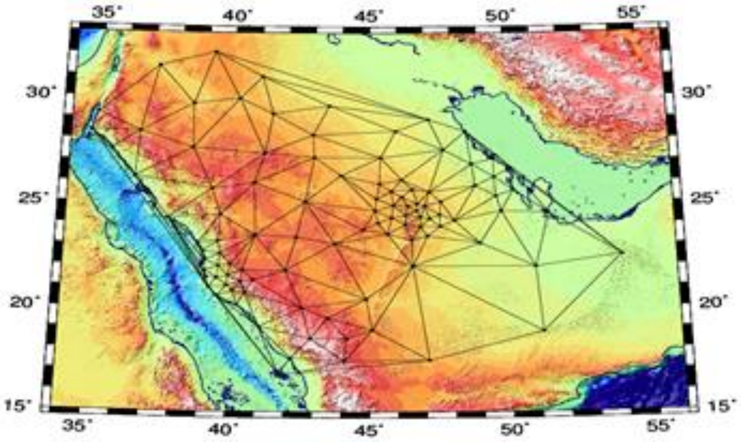


Figure (1.3) : The national geodetic network

- Establish, update and maintain the national geodetic network.
- Establish and operate a network of continuously operating GNSS positioning reference stations.
- Compute, determine and update the national geodetic reference framework for the Kingdom of Saudi Arabia and link it to the International Terrestrial Reference Frame (ITRF).
- Establish, update and maintain the national vertical network.
- Establish the (relative and absolute) gravity networks, determine the Earth gravity and magnetic values and intensify them to be used in observing and noting the movements of the Earth's crust and the shape of the Earth as well as correcting point elevations on the vertical national network.
- Compute, determine and update the national geoid of the Kingdom of Saudi Arabia.
- Carry out all types of land surveying.
- Set standards and specifications for land surveying work and related activities in the Kingdom of Saudi Arabia.

Section 2 : Topographic Information Production

Geospatial Information Production is the process whereby the topographic features of the Kingdom of Saudi Arabia,are collected from various sources and processes, and compiled into specification compliant geoinformation products.
GCS compiles these topographic features from a variety of different sources, including stereo aerial and satellite imagery, GPS coordinates obtained in the field, and authoritative supplementary data. Examples of the features currently available in GCS databases are:

- Terrain features such as sand, gravel, etc.
- Water features such as coastlines, wadis (dry watercourses) etc.
- Man-made features such as roads, buildings, walls and fences, etc.

Figure (1.4) : Topographic features

The horizontal and vertical coordinates of these features are obtained by photogrammetrically measuring stereo aerial or satellite images. These results are verified and classified in the field, and additional information that was not visible during the photogrammetric process is also collected via GPS. New geographical names are also gathered in the field and added to the existing names database for labelling these topographic features.
The clear and unambiguous representation of these topographic features on a map, is realized by a cartographic process, which is both an art and a science. The map scale and specification define the map content, accuracy and overall appearance. This process converts topographic data into topographic map information.
GCS also produces topographic and image maps data in other scales, such as the 1:2,000,000 scale National Reference Map.

Section 3 : Hydrography

Hydrography is the branch of applied sciences which deals with the measurement and description of the physical features of oceans, seas, coastal areas, lakes and rivers, as well as with the prediction of their change over time, for the primary purpose of safety of navigation and in support of all other marine activities, including economic development, security and defense, scientific research, and environmental protection. **(IHO)**

Figure (1.5) : A ship belonging to hydrographic survey

GCS hydrographic survey activities covers:

- Planning and implementation of marine surveys (hydrography and marine sciences) in marine areas of the Kingdom of Saudi Arabia.
- Collection, processing, archival and retrieval of marine spatial data.
- Planning and execution of hydrographic infrastructure and assets.
- Delineation of islands with geographical information.
- The development of standards and specifications for marine survey work in Saudi marine areas.
- Establishing marine scientific research relevant to marine surveys with a forecasting service.
- Issuing permits to survey vessels and scientific research vessels in the Saudi marine areas.
- Planning and execution of hydrographic and marine sciences projects with modern equipment.
- Management of hydrographic and related marine sciences data.
- Production of Electronic Navigational Charts (ENC), Paper Nautical Charts (PNC), and Coastal Zone Management Charts (CZMC).

- Planning and management of the National Tide Gauge Network.
- Planning and execution of relevant capacity building programs.
- Human resources development in hydrography, marine cartography and relevant marine sciences.

Section 4 : Geospatial Information Dissemination

GCS established the Geospatial Information Center (GIC) as a foundational unit to be the integrator and disseminator of geospatial information for GCS as well as related features and associated metadata. As depicted here, GIC is the center of GCS information flow responsible to identify and evaluate the sources, information processes and quality management aspects of the data.

As GIC is mandated to be the GCS's information center, GIC must proceed with a number of implementation strategies in order to realize its objectives. Some of these strategies are:

- Develop integrated geospatial database and information systems.
- Provide for the management, archiving, maintenance and publishing of GCS geospatial data.
- Promote, develop, manage and maintain the GCS Spatial Data Infrastructure (SDI).
- Provide administrative and technical support to the National GIS Committee.
- Provide geospatial information systems studies and development projects for stakeholders.

Figure (1.6) : GIC server

GIC is building an integrated, seamless, fine-grained, temporal geo-database in accordance with international standards. This geo-database is a critical success component for the GIC and it demands a high level of analysis, design and development. The proper understanding of the various stakeholder units and functions of GCS is dependent on qualifying the roles and responsibilities for information creation, production, processing, and storage at GCS. This also will ensure that all the relevant stakeholders and their various domains of knowledge are incorporated into the scope of the GIC's projects.

All data production efforts conducted within GCS will feed into the GIC distribution database to be the source for all information disseminated by GCS, including online information through the Geo Portal Website, in addition to all print and digital media. In particular, the production of standard and custom map products (cartography) will be based on this database, with the integration of information coming from multiple external sources.

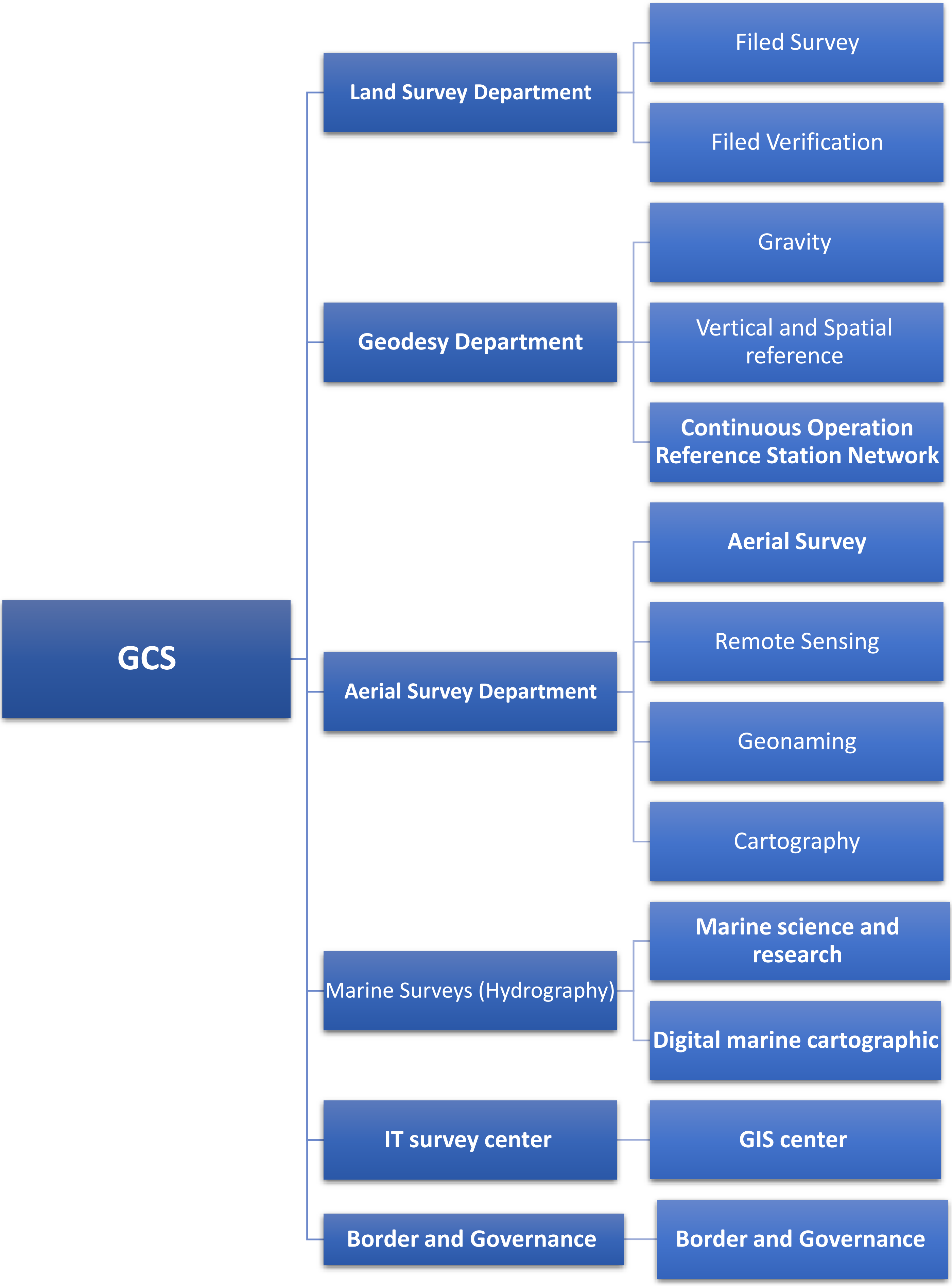
Chapter 2 : OBJECTIVES OF THE TRAINING

The main objectives of the practical training are as follows

1. To attach between the training and nature of working with what has been study in collage courses and it is related with the practical life.
2. see valuable of practical experience.
3. enhance the student in work life.
4. find out organization structure and department.
5. bear the pressure of work.

Chapter 3 : Training Course : [Appendix 1]

Week	Department	Section
1	Land Survey	Filed Survey
2		Filed Verification
3	Geodesy	Gravity and Vertical reference
4		Spatial reference and Continuous Operation Reference Station Network
5	Aerial Survey Department	Aerial Survey and Remote Sensing
6		Geonaming and Cartography
7	marine surveys (hydrography)	Marine science and research
8		Digital marine cartographic
9	IT survey center	GIS center
10	Border and Governance	Border and Governance


GCS
Land Survey Department
Filed Survey
Filed Verification
Geodesy Department
Gravity
Vertical and Spatial reference
Continuous Operation Reference Station Network
Aerial Survey Department
Aerial Survey
Remote Sensing
Geonaming
Cartography
Marine Surveys (Hydrography)
Marine science and research
Digital marine cartographic
IT survey center
GIS center
Border and Governance
Border and Governance

First week :

Filed Survey section :

- **Tasks :**
  - Observe and measure Aviation obstacles (Topographic obstacles such as mountains , Human-build like a Tower)
  - Supervising the Panoramic Photography of the landmarks and features .
  - Observe , process and measure the control points (CP – QC) to:
    - Correct the Aerial and space Photography .
    - Leveling
    - Link the features on the land with the Aerial Photography
- **In the class :**
  - Land survey tasks and global survey specifications .
  - Surveying devices warehouse.
  - Cadastral and Stakeout the features .

- **In the office :**
  - Using the surveyor programs :
    - ArcGis
    - ArcPod with DGPS
    - TerraSync with DGPS
    - Trimble Business Center ' TBC '
    - GPS Pathfinder
    - Mobile GIS ' Geospatial website '
  - Dealing with small project by using the department standards and steps :
    - Study the area (Area of interest ' AOI ')
    - Prepare the tools , maps , sheet and devices
    - Check and double check the results
  - Learning , Preparing and Using the devices :
    - Total Station (TRIMBLE S6)
    - GNSS Systems :
      - TRIMBLE R7
      - TRIMBLE R10
    - Rugged Tablet (TRIMBLE Yuma)

Second week :

Filed Verification :

- **Tasks :**
    - **Collect and update the Geospatial database of KSA .**
    - **Classification the features in the filed .**

- **In the Filed :**
    - Total Station (TRIMBLE S6) [Appendix 1]

    - GNSS Systems :
        - TRIMBLE R7 [Appendix 1]
        - TRIMBLE R10 [Appendix 1]
    - Rugged Tablet (TRIMBLE Yuma) [Appendix 1]
    - Distance measure (TruiPulse 360̊ B) [Appendix 1]

Figure (1.7) : TRIMBLE S6

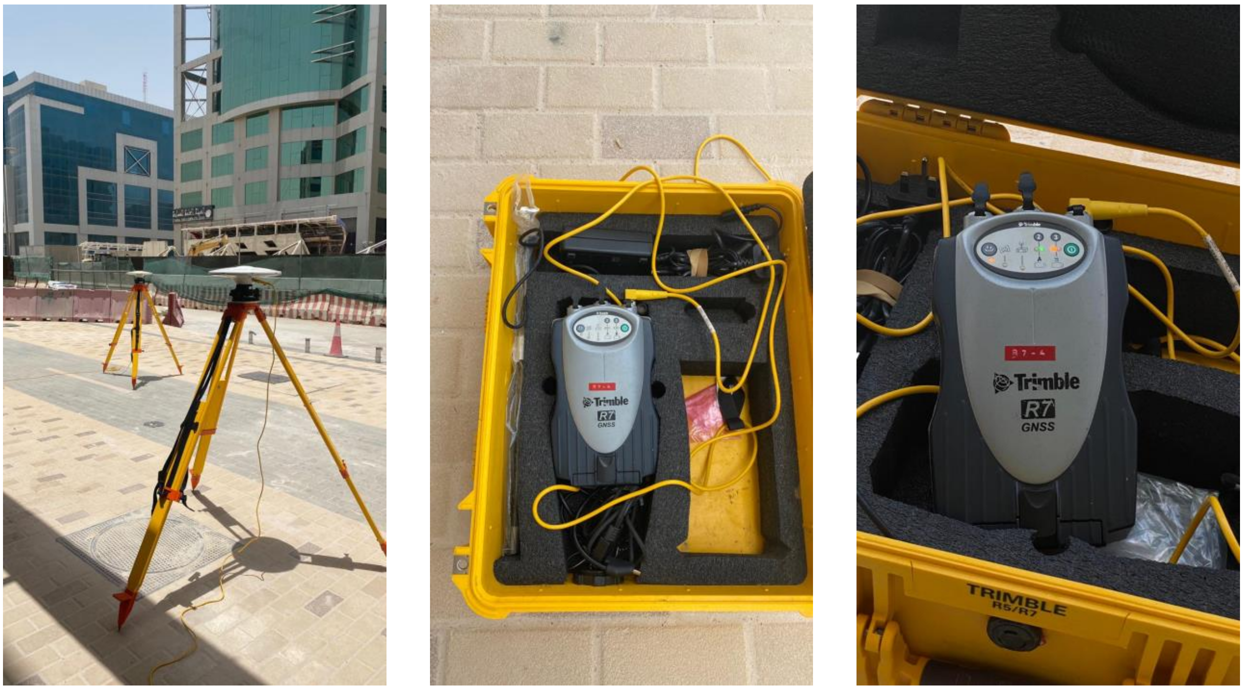


Figure (1.8) : TRIMBLE R7

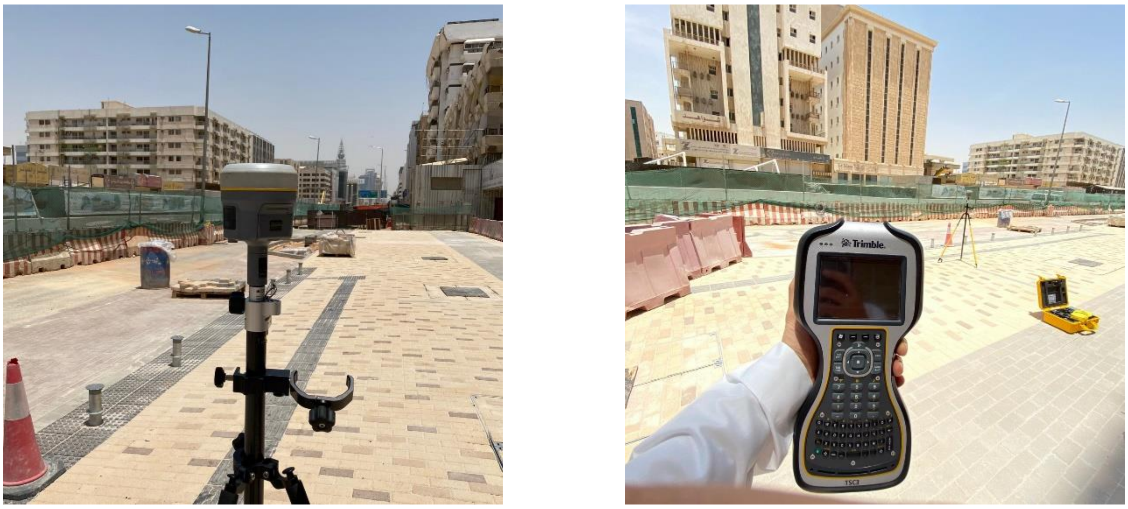


Figure (1.9) : TRIMBLE R10

Figure (1.10) : Rugged Tablet (TRIMBLE Yuma)

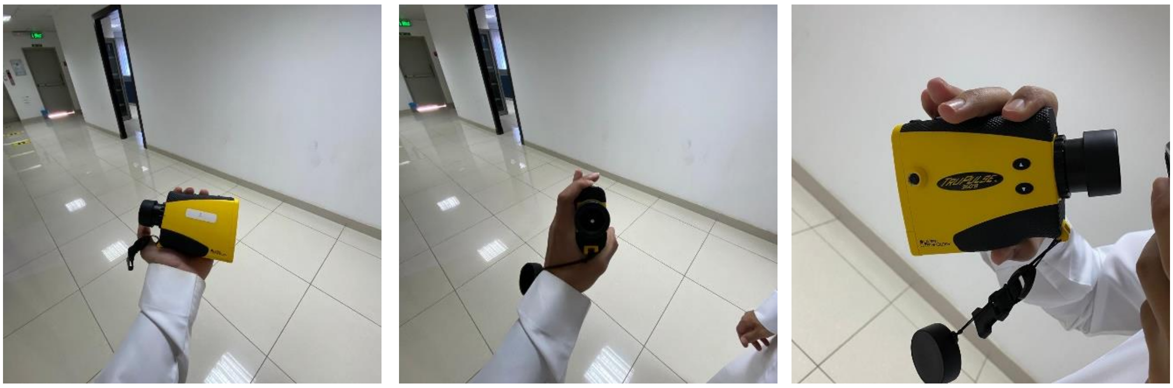


Figure (1.11) : Distance measure (TruiPulse 360˚B)

Third week :

Gravity section :

- **Tasks :**
  - **Study the density of the stone 'rocks' .**
  - **Study the density of the earth's layers .**
  - **Study the gravity across the Saudi Arabia .**

- **In the Office :**
  - **Calculate the Gravitational Constant by using Newton first law . $G = 6.67 \times 10^{-11}\ m^{3}\ kg^{-1}\ s^{-1}$**
  - **Calculate the mass and radius of the earth by using Newton second law . $M = 5.977 \times 10^{24}$ kg and Ř = 6371 km**
  - **Study and learn the Gravity units**
  - **Study the Reference System Equations 'RSE'**
    - Helmert Equations
    - International Formula 1930 .
  - **Study the change in gravity :**
    - Free-Air variation .
    - Bouguer variation .
    - Tidal effect .
    - Topography .
  - **Dealing with Gravimeter :**
    - LaCoste & Romberg
    - portAble Absolute grAvity meter (A10) [Appendix 1]
    - AutoGrav (CG-5) [Appendix 1]
    - Absolute GRAVITY Meter (FG5-X) [Appendix 1]

Saudi Arabia National Spatial Reference System (SANSRS) is:

- A consistent reference system that defines Cartesian coordinates, longitude, latitude, height, scale, gravity and orientation throughout the Kingdom of Saudi Arabia.
- A system which allows users to precisely determine and express locations in the kingdom of Saudi Arabia, as well as to quantify changes of the Earth and its gravity field in space and time.
- Designed to meet national economic, social and environmental needs and is used in all applications & services for positioning in horizontal and vertical directions. Also, all existing geospatial products & services are referenced to it.

The SANSRS consists of the following geodetic components:

- Geodetic Reference Frame (KSA-GRF)
  KSA-GRF is defined in such a way that:
  (1) It coincides with the latest ITRF (ITRF2014) at epoch 2017.
  (2) It is co-moving with the stable part of the Arabian tectonic plate.
  KSA-GRF is established based on the GNSS observation data of the National Continuously Operating Reference Stations Network (KSA-CORS) and CORS Networks of other organizations. The first and latest realization of this GRF is named KSA-GRF17.

- **Vertical Reference Frame (KSA-VRF)**
  KSA-VRF is based on in-situ observations from Tide Gauge Stations, precise leveling, gravity data, satellite altimetry and GOCE data. The last realization of this VRF is named KSA-VRF14.

- **Geoid Model (KSA-GEOID)**
  KSA-Geoid is a hybrid model based on gravimetric geoid, which utilizes land & shipborne gravity pointwise and grid data together with satellite data (altimetric & gravity satellite missions data).

- **Saudi Arabia Geodetic Infrastructure**
  It includes different geodetic networks (3D GNSS CORS, horizontal, vertical, tide gauge & gravity), together with necessary data from other satellite techniques and Earth observations. It supplies the data and information for the definition of the SANSRS components above.

- **Transformation parameters and tools ‘TT’**
  It is used for transformation between existing reference frames in KSA and components of SANSRS.

KSA-Continuous Operation Reference Station Network (KSA-CORS) Phase One

Covering the whole Kingdom with an ideal CORS network.

- Next step is thinning out the network into so-called Phase One in order to fulfill the primary network objectives.
- One of the important site selection criteria for Phase One is the accessibility to the roads

Geometrical Information for KSA-CORS-Phase One

- Number of Baselines 281
- Minimum Distance 29 km.
- Maximum Distance 592 km.
- Average Distance 147 km.
- Average Point Density ~0.5 points per 10000 km^2
- Number of Stations 105

forth week :

Vertical and Spatial reference

- Tasks :
    - Modeling and creating Vertical and Spatial reference .
    - Sharing the database and information with different agencies and authority .
- In the Office :
    - Transformation Tools ‘TT’
    - KSA TRAN

Figure (1.12) : portAble Absolute grAvity meter (A10)

Figure (1.13) : AutoGrav (CG-5)

Figure (1.14) : Absolute GRAVITY Meter (FG5-X)

Fifth week :

Aerial Survey and Remote Sensing

- Tasks :
  - Satellite and aerial triangulation .
  - Improving the quality of satellite and aerial photos
  - National coverage and geospatial portal

- In the Office :
  - Using INPHO program to deal with satellite and aerial images
  - Using GIS to deal with historical images of Saudi Arabia .
  - Using Romana gate to rename the local places to be read in local pronunciation .

sixth week :

Geonaming and Cartography

- **Tasks :**
  - **Rename the local places and attractions .**
  - **Drawing the places and attractions of satellite and aerial photos .**
  - **National coverage and geospatial portal .**

- **In the Office :**
  - **Using ROMANA Gate to rename the local places and attractions** [Appendix 1]
  - **Using GIS to deal with historical images of Saudi Arabia .**
  - **Using ROMANA gate to rename the local places to be read in local pronunciation .** [Appendix 1]

seventh week :

Marine science and research

- **Tasks :**
  - **Planning and implementation of marine surveys (hydrography and marine sciences) in marine areas of the Kingdom of Saudi Arabia.**
  - **Collection, processing, archival and retrieval of marine spatial data.**
  - **Planning and execution of hydrographic infrastructure and assets.**
  - **Delineation of islands with geographical information**
- **In the Office :**
  - **The development of standards and specifications for marine survey work in Saudi marine areas.**
  - **Establishing marine scientific research relevant to marine surveys with a forecasting service.**
  - **Issuing permits to survey vessels and scientific research vessels in the Saudi marine areas.**
  - **Planning and execution of hydrographic and marine sciences projects with modern equipment.**
  - **Management of hydrographic and related marine sciences data.**
  - **Production of Electronic Navigational Charts (ENC), Paper Nautical Charts (PNC), and Coastal Zone Management Charts (CZMC).**

  - **Planning and management of the National Tide Gauge Network.**
  - **Planning and execution of relevant capacity building programs.**
  - **Human resources development in hydrography, marine cartography and relevant marine sciences**

eighth week :

Digital marine cartographic “ DMCD”

- **Tasks :**
  - **Planning and implementation of marine surveys (hydrography and marine sciences) in marine areas of the Kingdom of Saudi Arabia.**
  - **Collection, processing, archival and retrieval of marine spatial data.**
  - **Planning and execution of hydrographic infrastructure and assets.**
  - **Delineation of islands with geographical information**
- **In the Office :**
  - **The development of standards and specifications for marine survey work in Saudi marine areas.**
  - **Establishing marine scientific research relevant to marine surveys with a forecasting service.**
  - **Issuing permits to survey vessels and scientific research vessels in the Saudi marine areas.**
  - **Planning and execution of hydrographic and marine sciences projects with modern equipment.**
  - **Management of hydrographic and related marine sciences data.**
  - **Production of Electronic Navigational Charts (ENC), Paper Nautical Charts (PNC), and Coastal Zone Management Charts (CZMC).**

  - **Planning and management of the National Tide Gauge Network.**
  - **Planning and execution of relevant capacity building programs.**
  - **Human resources development in hydrography, marine cartography and relevant marine sciences**

ninth week :

IT survey center – GIS center :

- **Tasks :**
  - **Learn us how to deal with GIS**
  - **Dealing with the project of KSA-Gate**
- **In the Office :**
  - **Learn different tools and extinctions of GIS .**
    - **ToolBox**
  - **Learn how to build database**
    - **Personal Geodatabase**
    - **Enterprice Geodatabase**
  - **Learn how to build Geodatabase**
    - **Dataset**
    - **Class**
  - **Learn how to Data**
    - **Point**
    - **Polygon**
    - **Polyline**
  - **Learn how to print the maps with its databases**
  - **Analysis the density for any databases .**

tenth week :

Border and Governance :

- **Tasks :**
    - **Introducing the land and sea borders of the Kingdom of Saudi Arabia with the neighboring countries**

- **In office :**
    - **Using the website** (https://geoportal.sa/GCS/WebPages/Map/FundyViewer.aspx)

Recommendations

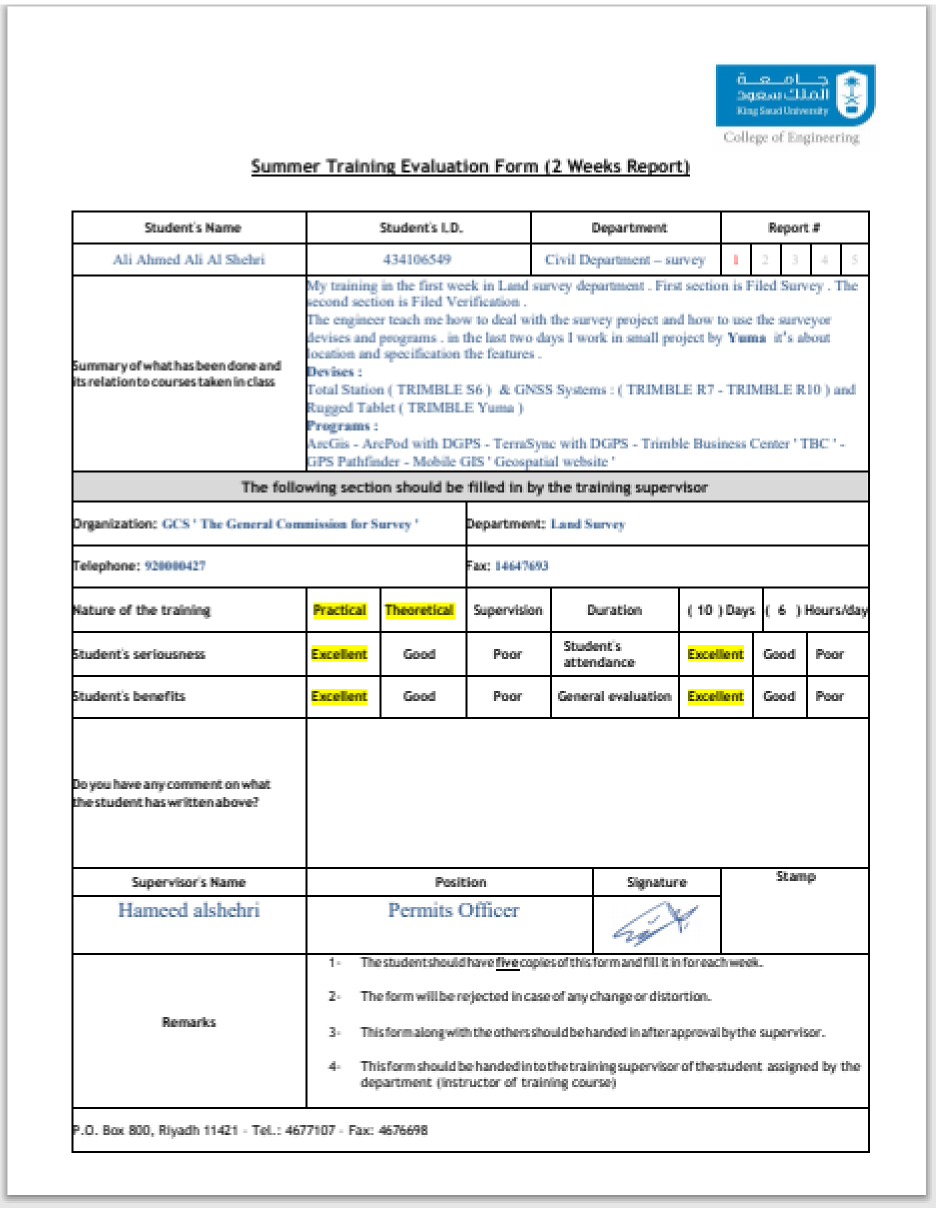
- **Increase training period for more acquisition and enable diversity in more than commotion.**
- **increase training opportunity for surveying engineers.**
- **follow up the training by supervisor with meeting trainees in two period.**
- **make training course every summer for student to enhance their knowledge.**

CONCLUSIONS

Getting benefit from training opportunity with connected information theoretically and practically and take an overview about nature of work and I can build and enhance my skills in work and I have taken impression about field work.
all thanks to the collage for this experiment .

Appendix

Bi-weekly report ‘1’



جامعة الملك سعود
King Saud University
College of Engineering

Summer Training Evaluation Form (2 Weeks Report)

Student's Name	Student's I.D.	Department	Report #
Ali Ahmed Ali Al Shehri	434106549	Civil Department – survey	[✓ 1] 2 3 4 5

Summary of what has been done and its relation to courses taken in class	My training in the first week in Land survey department . First section is Filed Survey . The second section is Filed Verification . The engineer teach me how to deal with the survey project and how to use the surveyor devises and programs . in the last two days I work in small project by **Yuma** it's about location and specification the features . **Devises :** Total Station (TRIMBLE S6) & GNSS Systems : (TRIMBLE R7 - TRIMBLE R10) and Rugged Tablet (TRIMBLE Yuma) **Programs :** ArcGis - ArcPod with DGPS - TerraSync with DGPS - Trimble Business Center ' TBC ' - GPS Pathfinder - Mobile GIS ' Geospatial website '

The following section should be filled in by the training supervisor

Organization: GCS ' The General Commission for Survey ' | Department: Land Survey

Telephone: 920000427 | Fax: 14647693

Nature of the training	[✓ Practical]	[✓ Theoretical]	Supervision	Duration	(10) Days	(6) Hours/day	
Student's seriousness	[✓ Excellent]	Good	Poor	Student's attendance	[✓ Excellent]	Good	Poor
Student's benefits	[✓ Excellent]	Good	Poor	General evaluation	[✓ Excellent]	Good	Poor

Do you have any comment on what the student has written above?	

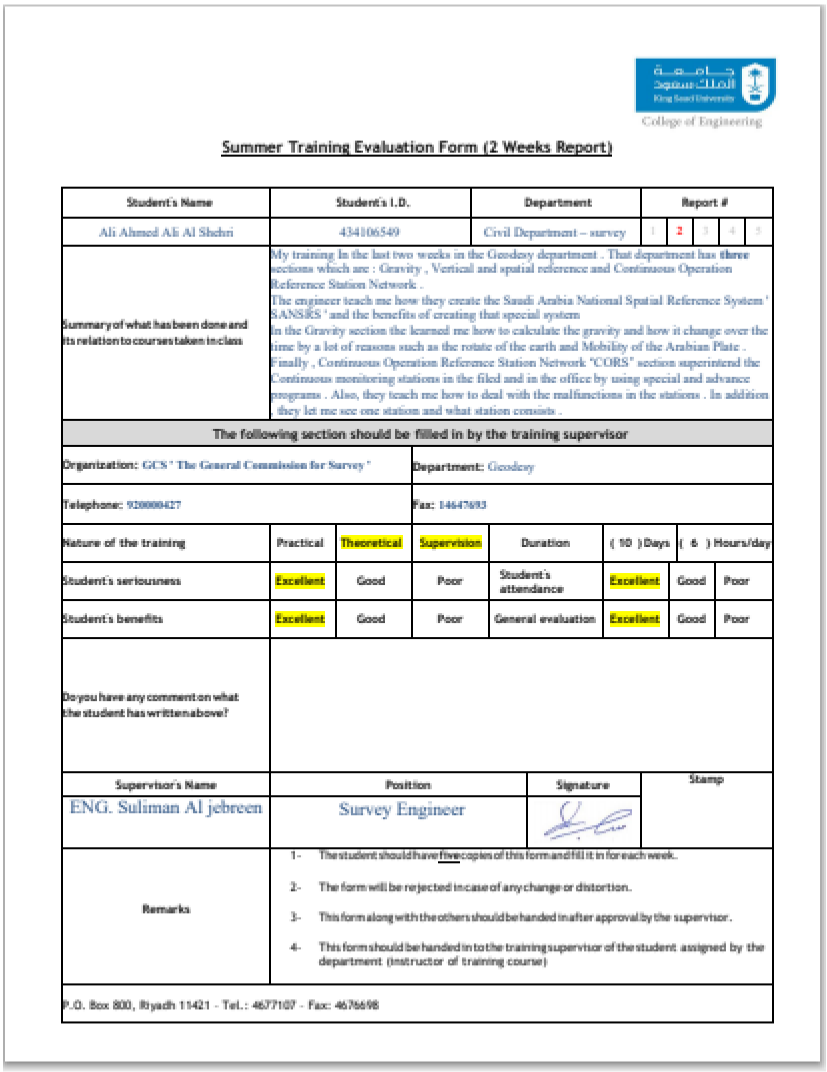
Supervisor's Name	Position	Signature	Stamp
Hameed alshehri	Permits Officer		

Remarks

1- The student should have five copies of this form and fill it in for each week.
2- The form will be rejected in case of any change or distortion.
3- This form along with the others should be handed in after approval by the supervisor.
4- This form should be handed in to the training supervisor of the student assigned by the department (instructor of training course)

P.O. Box 800, Riyadh 11421 - Tel.: 4677107 - Fax: 4676698

Bi-weekly report ‘2’



جامعة الملك سعود
King Saud University
College of Engineering

Summer Training Evaluation Form (2 Weeks Report)

Student's Name	Student's I.D.	Department	Report #				
Ali Ahmed Ali Al Shehri	434106549	Civil Department – survey	1	[✓ 2]	3	4	5

Summary of what has been done and its relation to courses taken in class	My training In the last two weeks in the Geodesy department . That department has three sections which are : Gravity , Vertical and spatial reference and Continuous Operation Reference Station Network . The engineer teach me how they create the Saudi Arabia National Spatial Reference System ' SANSRS ' and the benefits of creating that special system In the Gravity section the learned me how to calculate the gravity and how it change over the time by a lot of reasons such as the rotate of the earth and Mobility of the Arabian Plate . Finally , Continuous Operation Reference Station Network "CORS" section superintend the Continuous monitoring stations in the filed and in the office by using special and advance programs . Also, they teach me how to deal with the malfunctions in the stations . In addition , they let me see one station and what station consists .

The following section should be filled in by the training supervisor

Organization: GCS ' The General Commision for Survey '	Department: Geodesy
Telephone: 920000427	Fax: 14647693

Nature of the training	Practical	[✓ Theoretical]	[✓ Supervision]	Duration	(10) Days	(6) Hours/day
Student's seriousness	[✓ Excellent]	Good	Poor	Student's attendance	[✓ Excellent]	Good	Poor
Student's benefits	[✓ Excellent]	Good	Poor	General evaluation	[✓ Excellent]	Good	Poor

Do you have any comment on what the student has written above?	

Supervisor's Name	Position	Signature	Stamp
ENG. Suliman Al jebreen	Survey Engineer		

Remarks

1- The student should have five copies of this form and fill it in for each week.

2- The form will be rejected in case of any change or distortion.

3- This form along with the others should be handed in after approval by the supervisor.

4- This form should be handed in to the training supervisor of the student assigned by the department (instructor of training course)

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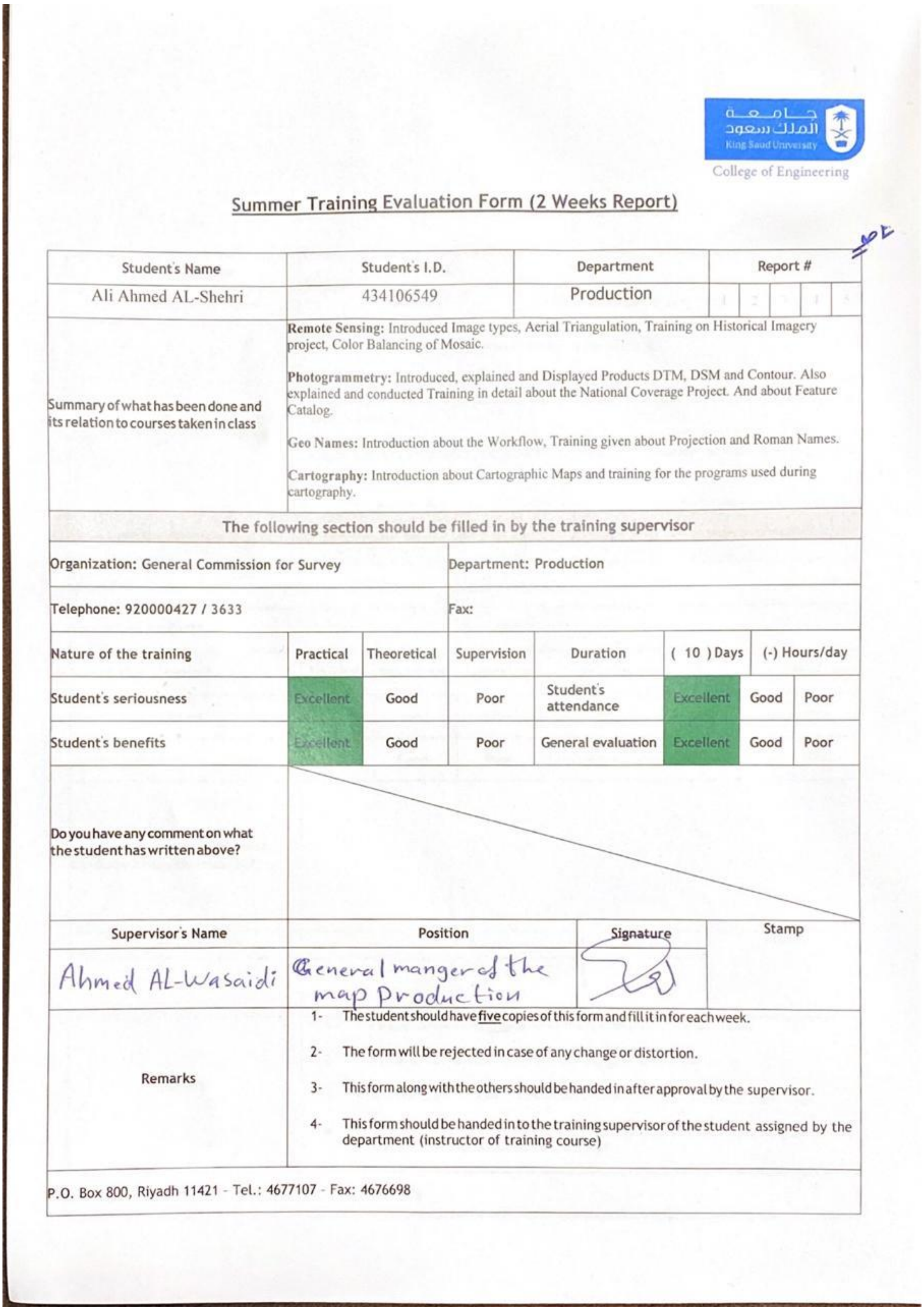
Bi-weekly report '3'



King Saud University
College of Engineering

Summer Training Evaluation Form (2 Weeks Report)

Student's Name	Student's I.D.	Department	Report #
Ali Ahmed AL-Shehri	434106549	Production	1 2 3 4 5

Summary of what has been done and its relation to courses taken in class

Remote Sensing: Introduced Image types, Aerial Triangulation, Training on Historical Imagery project, Color Balancing of Mosaic.

Photogrammetry: Introduced, explained and Displayed Products DTM, DSM and Contour. Also explained and conducted Training in detail about the National Coverage Project. And about Feature Catalog.

Geo Names: Introduction about the Workflow, Training given about Projection and Roman Names.

Cartography: Introduction about Cartographic Maps and training for the programs used during cartography.

The following section should be filled in by the training supervisor

Organization: General Commission for Survey

Department: Production

Telephone: 920000427 / 3633

Fax:

Nature of the training	Practical	Theoretical	Supervision	Duration	(10) Days	(-) Hours/day	
Student's seriousness	[✓ Excellent]	Good	Poor	Student's attendance	[✓ Excellent]	Good	Poor
Student's benefits	[✓ Excellent]	Good	Poor	General evaluation	[✓ Excellent]	Good	Poor

Do you have any comment on what the student has written above?

Supervisor's Name	Position	Signature	Stamp
Ahmed AL-Wasaidi	General manger of the map Production		

Remarks

1- The student should have five copies of this form and fill it in for each week.
2- The form will be rejected in case of any change or distortion.
3- This form along with the others should be handed in after approval by the supervisor.
4- This form should be handed in to the training supervisor of the student assigned by the department (instructor of training course)

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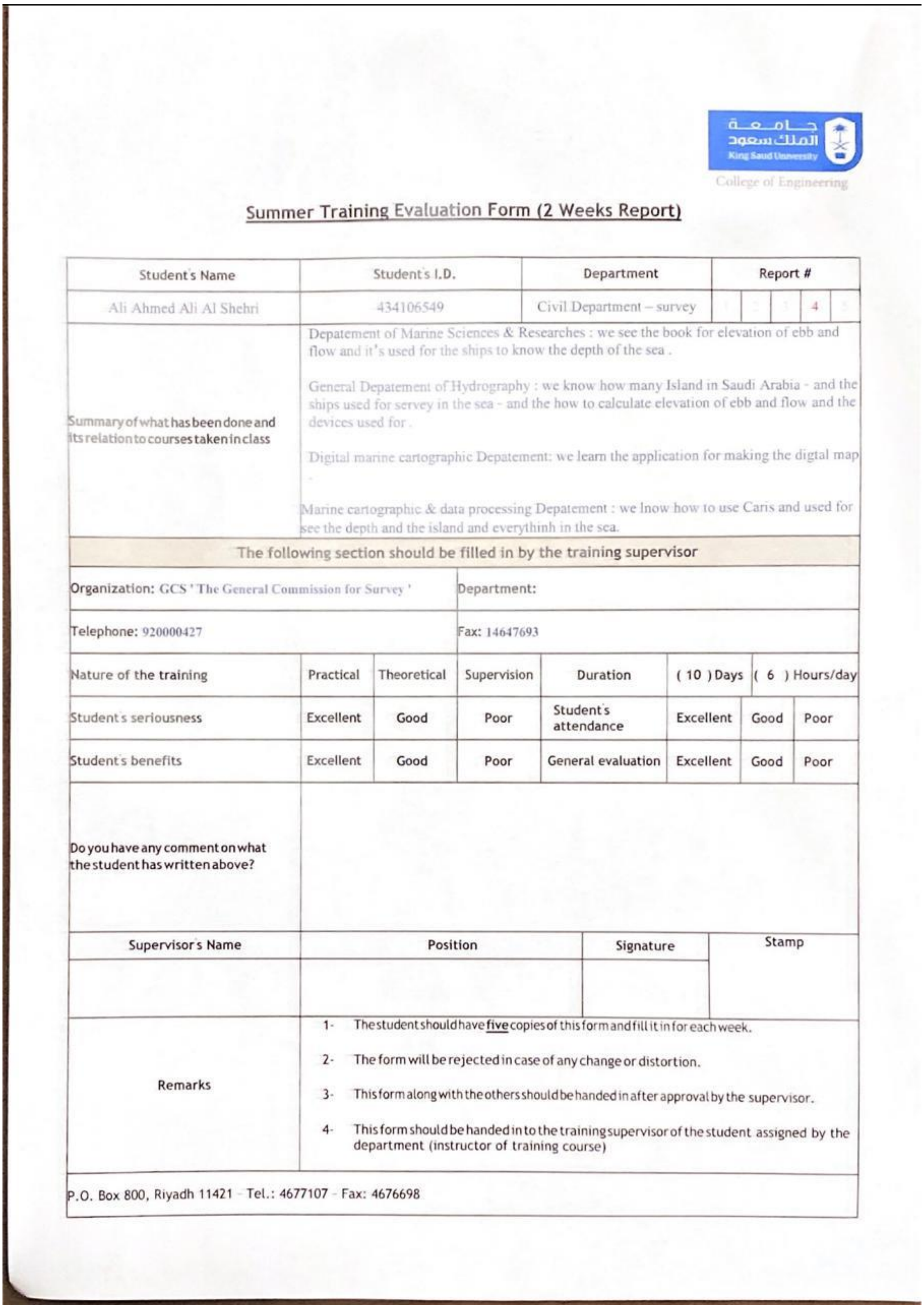
Bi-weekly report ‘4’



College of Engineering

Summer Training Evaluation Form (2 Weeks Report)

Student's Name	Student's I.D.	Department	Report #
Ali Ahmed Ali Al Shehri	434106549	Civil Department – survey	1 2 3 4 5
Summary of what has been done and its relation to courses taken in class	Depatement of Marine Sciences & Researches : we see the book for elevation of ebb and flow and it's used for the ships to know the depth of the sea . General Depatement of Hydrography : we know how many Island in Saudi Arabia - and the ships used for servey in the sea - and the how to calculate elevation of ebb and flow and the devices used for . Digital marine cartographic Depatement: we learn the application for making the digtal map . Marine cartographic & data processing Depatement : we lnow how to use Caris and used for see the depth and the island and everythinh in the sea.		

The following section should be filled in by the training supervisor

Organization: GCS ' The General Commission for Survey '	**Department:**
Telephone: 920000427	**Fax:** 14647693

Nature of the training	Practical	Theoretical	Supervision	Duration	(10) Days	(6) Hours/day
Student's seriousness	Excellent	Good	Poor	Student's attendance	Excellent	Good	Poor
Student's benefits	Excellent	Good	Poor	General evaluation	Excellent	Good	Poor

Do you have any comment on what the student has written above?	

Supervisor's Name	Position	Signature	Stamp

Remarks	1- The student should have five copies of this form and fill it in for each week. 2- The form will be rejected in case of any change or distortion. 3- This form along with the others should be handed in after approval by the supervisor. 4- This form should be handed in to the training supervisor of the student assigned by the department (instructor of training course)

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Attachment